

***Remarks***

Reconsideration of this Application is respectfully requested.

Upon entry of the foregoing amendment, claims 1-19 are pending in the application, with claims 1, 3, 5, 9, 12 and 15 being the independent claims. No new claims are sought to be added. Claims 1, 3, 5 and 15 have been amended. These changes are believed to introduce no new matter, and their entry is respectfully requested.

Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider all outstanding objections and rejections and that they be withdrawn.

***Rejections under 35 U.S.C. § 102***

The Examiner rejected claim 1-19 under 35 U.S.C. § 102(b) as allegedly being anticipated by US Published Application No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood"). For the reasons set forth below, Applicants respectfully traverse.

**Independent Claim 1**

Applicants maintain that Grimwood does not teach or suggest each and every feature of claim 1. For example Grimwood does not teach or suggest transmitting a second signal to remote devices upon termination of transmission of the first signal to the remote devices, wherein the second signal includes timing information based on the second symbol clock.

Independent claim 1 recites a method for *maintaining synchronization* in a communication system. The method includes the steps of:

synchronizing a first symbol clock and a second symbol clock;

transmitting a first signal to the one or more remote devices, wherein the first signal includes timing information based on the first symbol clock; and

*upon termination of transmission of the first signal to the one or more remote devices, transmitting a second signal to the one or more remote devices, where in the second signal includes timing information based on the second symbol clock.* (emphasis added).

Transmission of a second signal if and when the first signal is terminated facilitates maintaining synchronization even though there may be a loss of downstream signal. This minimizes the need for re-ranging and the occurrence of poorly timed upstream bursts. Grimwood teaches an apparatus and a method for synchronizing an upstream signal to a downstream signal with equal or different clock rates. The central unit of Grimwood synchronizes the clock rate of upstream and downstream signals (as opposed to synchronizing two upstream clocks). Grimwood does this to avoid the need for an upstream clock recovery circuit (Grimwood, paragraph [0057], lines 1-8).

Grimwood does not teach or suggest that the central entity (central unit) transmits two downstream signals to one or more remote devices, with the second transmission occurring after the first transmission has terminated. The claimed “first signal” and the claimed “second signal” include timing information based on the first and the second clocks, respectively (these two clocks were previously synchronized). This method helps to maintain the synchronization between the central entity and one or more remote devices.

Since Grimwood does not teach or suggest each and every feature of independent claim 1, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 1 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claim 2**

Claim 2 depends from and further limits claim 1. It distinguishes from Grimwood for at least the reasons set forth above with respect to claim 1 and further in view of its own features. Accordingly, Applicants respectfully request that the rejection of claim 2 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Independent Claim 3**

The Examiner rejected claim 3 under 35 U.S.C. § 102(b) as allegedly being anticipated by US Application Publication No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood"). For the reasons set forth below, Applicants respectfully traverse.

Independent claim 3 recites a method for *maintaining synchronization* in a communication system. The method includes the steps of:

*synchronizing a first symbol clock and a second symbol clock;*

*transmitting a first signal to the one or more remote devices, wherein the first signal includes timing information based on the first symbol clock and data having a first forward error correction (FEC) alignment; and*

***upon termination of transmission of the first signal to the one or more remote devices, transmitting the second signal to the one or more remote devices, where in the second signal includes timing information based on the second symbol clock and data having a second FEC alignment that is synchronized with the first FEC alignment. (emphasis added).***

Applicants maintain that Grimwood does not teach or suggest each and every feature of claim 3. For example Grimwood does not teach or suggest ...transmitting a second signal to the one or more remote devices upon termination of transmission of the first signal to the one or more remote devices, wherein the second signal includes timing information based on the second symbol clock and data having a second FEC alignment that is synchronized with first FEC alignment. In order to maintain the synchronization between the central entity and one or more remote devices, claim 3 teaches transmitting two downstream signals, where the second signal is transmitted if and when the first signal is terminated. The FEC alignments of these two signals are synchronized. Grimwood does not teach or suggest transmitting a second signal upon termination of the first signal.

Since Grimwood does not teach or suggest each and every feature of independent claim 3, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 3 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claim 4**

Claim 4 depends from and further limits claim 3. It distinguishes from Grimwood for at least the reasons set forth above with respect to claim 3 and further in view of its own features. Accordingly, Applicants respectfully request that the rejection of claim 2 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Independent Claim 5**

The Examiner rejected claim 5 under 35 U.S.C. § 102(b) as allegedly being anticipated by US Application Publication No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood"). For the reasons set forth below, Applicants respectfully traverse.

Independent claim 5 recites a method for *maintaining synchronization* in a communication system. The method includes the steps of:

*synchronizing a first symbol clock and a second symbol clock;*  
*transmitting a first signal to the one or more remote devices, wherein the first signal includes timing information based on the first symbol clock and data having a first forward error correction (FEC) alignment;*  
*generating a **second signal** that includes timing information based on the second symbol clock and data having a second forward error correction (FEC) alignment;*  
***transmitting calibration information** relating to a difference between the first FEC alignment and the second FEC alignment to the one or more remote devices; and*  
*upon termination of transmission of the first signal to the one or more remote devices, transmitting the second signal to the one or more remote devices. (emphasis added)*

As explained above, claim 5 is not anticipated by Grimwood for at least the following reasons: (1) Grimwood does not teach or suggest transmitting calibration information relating to a difference between the first FEC alignment and the second FEC alignment to the one or more remote devices and (2) Grimwood does not teach or suggest transmitting a second signal to the one or more remote devices upon termination of transmission of the first signal to the one or more remote devices, as described above with respect to claim 1.

The Grimwood arrangement calculates a sync adjustment in FEC frames and inserts timestamps in order to lower jitter (see Grimwood FIGS. 8, 9, 10, and 11). But Grimwood does not teach or suggest transmitting calibration information relating to a *difference* between FEC alignments of two different signals to one or more remote devices as required by claim 5.

Since Grimwood does not teach or suggest each and every feature of independent claim 5, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 5 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claims 6-8**

Claim 6-8 depend from and further limits claim 5. They distinguish from Grimwood for at least the reasons set forth above with respect to claim 5 and further in view of their own features. Accordingly, Applicants respectfully request that the rejection of claims 6-8 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Independent Claim 9**

The Examiner rejected claim 9 under 35 U.S.C. § 102(b) as allegedly being anticipated by US Application Publication No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood"). For the reasons set forth below, Applicants respectfully traverse.

Applicants maintain that Grimwood does not teach or suggest each and every feature of claim 9.

Independent claim 9 recites an apparatus in a communication system, the apparatus comprising:

*a first transmitter adapted to transmit a first signal to one or more remote devices, wherein the first signal includes first timing information based on a first symbol clock;*  
*a second transmitter adapted to transmit a second signal to the one or more remote devices in response to the first transmitter terminating transmission of the first signal,*

*wherein the second signal includes second timing information based on a second symbol clock; and  
a synchronization element adapted to synchronize the first symbol clock and the second symbol clock. (emphasis added)*

Independent claim 9 is not anticipated by Grimwood for at least the reason that Grimwood does not teach or suggest an apparatus comprising a second transmitter adapted to transmit a second signal to the one or more remote devices in response to the first transmitter terminating, wherein the second signal includes second timing information based on a second symbol clock. The apparatus of claim 9 comprises two transmitters, a first transmitter adapted to transmit a first signal to one or more remote devices and a second transmitter adapted to transmit a second signal to one or more remote devices. The Grimwood arrangement has one transmitter in the central unit (CU) and one transmitter in the remoter unit (RU). However, Grimwood does not teach or suggest a second transmitter that transmits a second signal if and when the first transmitter terminates transmission.

Since Grimwood does not teach or suggest each and every feature of independent claim 9, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 9 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claims 10-11**

Claims 10-11 depend from and further limit claim 9. They distinguish from Grimwood for at least the reasons set forth above with respect to claim 9 and further in view of their own features. Accordingly, Applicants respectfully request that the rejection of claims 10-11 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Independent Claim 12**

The Examiner has rejected claim 12 under 35 U.S.C. § 102(b) as being anticipated by US Application Publication No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood").

For the reasons set forth below, Applicants respectfully traverse.

Claim 12 reads:

*An apparatus in a communication system, the apparatus comprising:*

*a **first transmitter** adapted to transmit a first signal to one or more remote devices, wherein the first signal includes first timing information based on a first symbol clock and first data having a first forward error correction (FEC) alignment;*

*a **second transmitter** adapted to transmit a second signal to the one or more remote devices in response to the first transmitter terminating transmission of the first signal, wherein the second signal includes second timing information based on a second symbol clock and second data having a second FEC alignment that is synchronized with the first FEC alignment; and*

*a synchronization element adapted to synchronize the first symbol clock and the second symbol clock.  
(emphasis added)*

Claim 12 is not anticipated by Grimwood for at least the reason that Grimwood does not teach or suggest an apparatus having **two transmitters**, where the second transmitter transmits a second signal to the a remote device if and when the first transmitter terminates transmission of the first signal, and where second signal includes second timing information based on a second symbol clock and second data having a second FEC alignment that is synchronized with the first FEC alignment.

Since Grimwood (Grimwood structure explained above) does not teach or suggest each and every feature of independent claim 12, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 12 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claims 13-14**

Claims 13-14 depend from and further limit claim 12. They distinguish from Grimwood for at least the reasons set forth above with respect to claim 12 and further in view of their own features. Accordingly, Applicants respectfully request that the rejection of claim 2 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Independent Claim 15**

The Examiner has rejected claim 15 under 35 U.S.C. § 102(b) as being anticipated by Publication No. US 2001/0033611 A1 to Grimwood *et al.* ("Grimwood"). For the reasons set forth below, Applicants respectfully traverse.

Claim 15 reads:

*An apparatus in a communication system, the apparatus comprising:*

*a **first transmitter** adapted to transmit a first signal to one or more remote devices, wherein the first signal includes first timing information based on a first symbol clock and first data having a first forward error correction (FEC) alignment;*

*a **second transmitter** adapted to transmit a second signal to the one or more remote devices in response to the first transmitter terminating transmission of the first signal, wherein the second signal includes second timing information based on a second symbol clock and second data having a second FEC alignment; and*

*a synchronization element adapted to synchronize the first symbol clock and the second symbol clock;*

*wherein at least one of the first transmitter and the second transmitter is adapted to transmit calibration information relating to a difference between the first FEC alignment and the second FEC alignment to the one or more remote devices. (emphasis added)*

Claim 15 is not anticipated by Grimwood for at least the reasons that Grimwood does not teach or suggest (1) an apparatus comprising two transmitters where "a second transmitter adapted to transmit a second signal to the one or more remote devices in response to the first transmitter terminating transmission of the first signal, where in the second signal includes second timing information based on a second symbol clock and second data having a second



FEC alignment that is synchronized with the first FEC alignment," and (2) "wherein at least one of the first transmitter and the second transmitter is adapted to transmit calibration information relating to a difference between the first FEC alignment and the second FEC alignment to the one or more remote devices."

Since Grimwood (see explanation of Grimwood above) does not teach or suggest each and every feature of independent claim 15, it cannot render anticipated that claim. Accordingly, Applicants respectfully request that the rejection of claim 15 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

**Dependent Claims 16-19**

Claims 16-19 depend from and further limit claim 15. They distinguish from Grimwood for at least the reasons set forth above with respect to claim 15 and further in view of their own features. Accordingly, Applicants respectfully request that the rejection of claims 16-19 under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

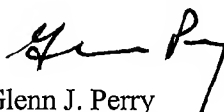
***Conclusion***

All of the stated grounds of objection and rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding objections and rejections and that they be withdrawn. Applicants believe that a full and complete reply has been made to the outstanding Office Action and, as such, the present application is in condition for allowance. If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Prompt and favorable consideration of this Amendment and Reply is respectfully requested.

Respectfully submitted,

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